

Universal Adapter Kit Schneider Electric Actuators 1/2" to 2" VG7000 Series and 2-1/8" Mounting Bonnet Flange Johnson Valves Installation Instructions

Application

The AV-803 adapter kit enables mounting of selected Schneider Electric electric and pneumatic actuators on Johnson Controls valve bodies that have a 2-1/8" bonnet mounting flange and up to 3/4" strokes using the appropriate Schneider Electric actuator linkage.

Figure-1 lists the Johnson VG7000 Series valves that are compatible with the AV-803 adapter kit, and Table- 1 on page 4 lists the compatible Schneider Electric actuators and linkages.

Warning:

- The AV-803 adapter kit is to be used **only** with the Schneider Electric actuators shown in Table- 1 on page 4. The use of other actuators is not acceptable due to valve stem force limitations including Schneider Electric Mx51-72xx on 1/2" or 3/4", or others with 1/4" stems.
- Depressurize the valve before removing the existing actuator and linkage and check integrity of the valve stem and plug by moving the stem up and down. If the valve stem and plug have been damaged, stem may blow out under pressure and cause injury and equipment damage.

Caution: Do not remove the packing cap from the valve.

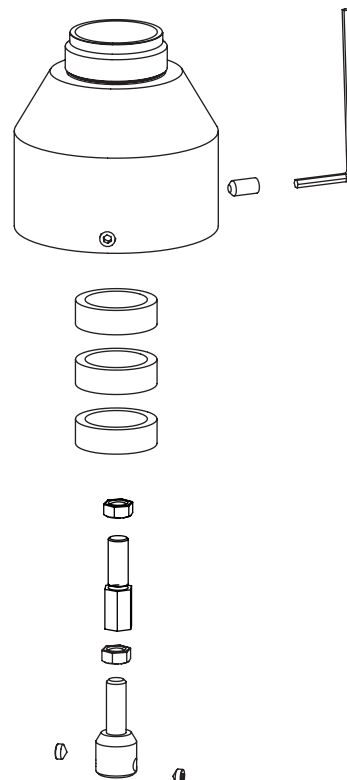
Note: Johnson valves without a 2-1/8" bonnet mounting flange require different kits for their specific bonnet configuration. Refer to *AV-801 Adapter Kit Schneider Electric Actuators to 1/2" and 3/4" Johnson VG7000 Valves, F-27396* and *AV-802 Universal Adapter Kit Schneider Electric Actuators to 1/2" and 3/4" Johnson VTM and VG7000 Series Valves Installation Instructions, F-27427*.

VG7 Series and VB Series Johnson Valves

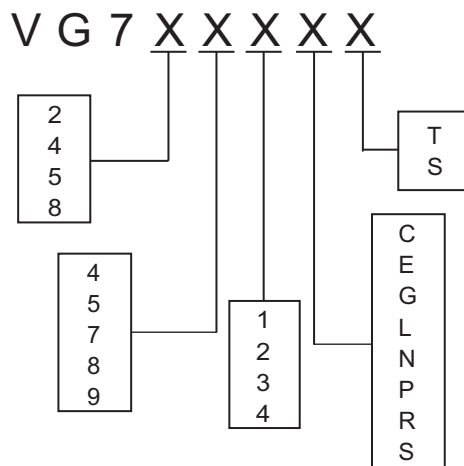
All combinations in Figure-1 use the AV-803 adapter kit to mount Schneider Electric actuators onto the Johnson Controls VG7 Series valves described above. See Table- 1 on page 4 for the recommended actuators.

Tools Needed

- (2) 5/16" wrenches
- TOOL 118 (³/₃₂" L type hex key, provided in kit)
- 6" mechanic's ruler, ¹/₃₂" divisions



Johnson VG7 Series valves – up to 3/4" stroke



AV-803 is also compatible with 1/2" to 2" VB-3754, VB-3974, VB-4322, and VB-4324 series valves with a 2-1/8" mounting flange.

Figure-1 VG7 and VB Series Selection Guide.

Threaded Stem Valve Instructions

Refer to Figure-2.

1. Install the stem nut onto the stem, finger tightening until it bottoms on the threads.
2. Install the stem extension and finger tighten until the stem bottoms on the threads.
3. Install the three 10-32 x 1/2" set screws in the bonnet mounting flange adapter.
4. Place the bonnet mounting flange adapter on the valve body.
5. Proceed to the procedure, "For Stem Up Open Valves" or "For Stem Up Closed Valves."

For Stem Up Open or 3-Way Valves

1. Push the valve stem to the fully down position.
2. Measure the distance from the top of the bonnet mounting flange adapter to the top of the stem extension. The distance should be 5/8" or more. If so, proceed to step 5.
3. If the distance from the top of the bonnet mounting flange adapter to the top of the stem extension is less than 5/8", remove the bonnet mounting flange adapter and adjust the stem extension until the distance from the top of the bonnet mounting flange adapter to the top of the stem extension is 5/8" or more and reinstall the bonnet mounting flange adapter.
4. Re-measure the distance from the top of the bonnet mounting flange adapter to the top of the stem extension to confirm it is 5/8" or more. If not, repeat step 3.
5. Remove the bonnet mounting flange adapter and tighten the stem nut against the stem extension. Reinstall the bonnet mounting flange adapter and tighten the set screws using TOOL 118, 1/4 turn past finger tight, and proceed to "Install the Actuator."

For Stem Up Closed Valves

1. Pull the valve stem to the fully up position.
2. Measure the distance from the top of the bonnet mounting flange adapter to the top of the stem extension. The distance should be 1-5/32" or less. If so, proceed to step 5.
3. If the distance from the top of the bonnet mounting flange adapter to the top of the stem extension is less than 1-5/32", remove the bonnet mounting flange adapter and adjust the stem extension until the distance from the top of the bonnet mounting flange adapter to the top of the stem extension is 1-5/32" or less and reinstall the bonnet mounting flange adapter.
4. Re-measure the distance from the top of the bonnet mounting flange adapter to the top of the stem extension to confirm it is 1-5/32" or less. If not, repeat step 3.
5. Remove the bonnet mounting flange adapter and tighten the stem nut against the stem extension. Reinstall the bonnet mounting flange adapter and tighten the set screws using TOOL 118, 1/4 turn past finger tight, and proceed to "Install the Actuator."

Install the Actuator

1. Install the selected actuator and linkage (if required) the same as you would on a Schneider Electric valve. Refer to Table- 1 on page 4 for the required linkage and actuator installation documentation.
2. For MK/MK4-2690 pneumatic actuators and AV-7400 linkage, install up to 3 spring spacers through the bonnet mounting flange adapter until they are approximately flush with the top of the bonnet mounting flange adapter.

Note: The spacers are required to install pneumatic actuator spring linkage kits.

3. To orient the actuator, loosen the three set screws on the bonnet mounting flange adapter, orient the assembly, and then retighten the set screws 1/4 turn.
4. Check the operation.

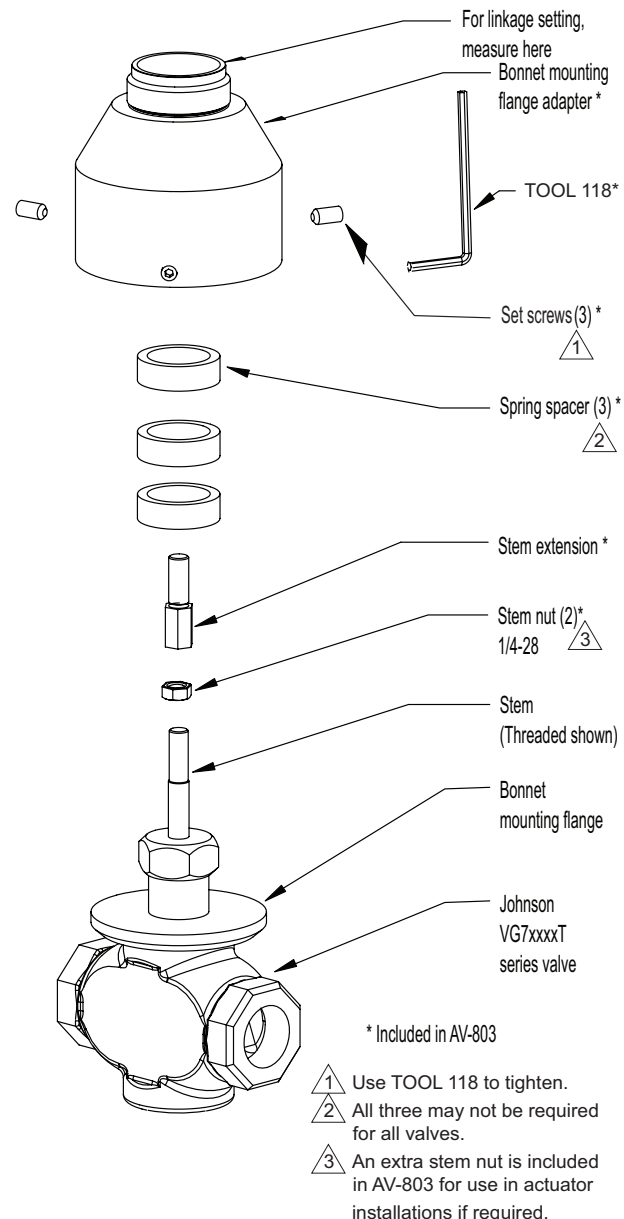


Figure-2 Adapter Assembly for Johnson Threaded Stem Valves.

Slotted Stem Valve Instructions

Refer to Figure-3.

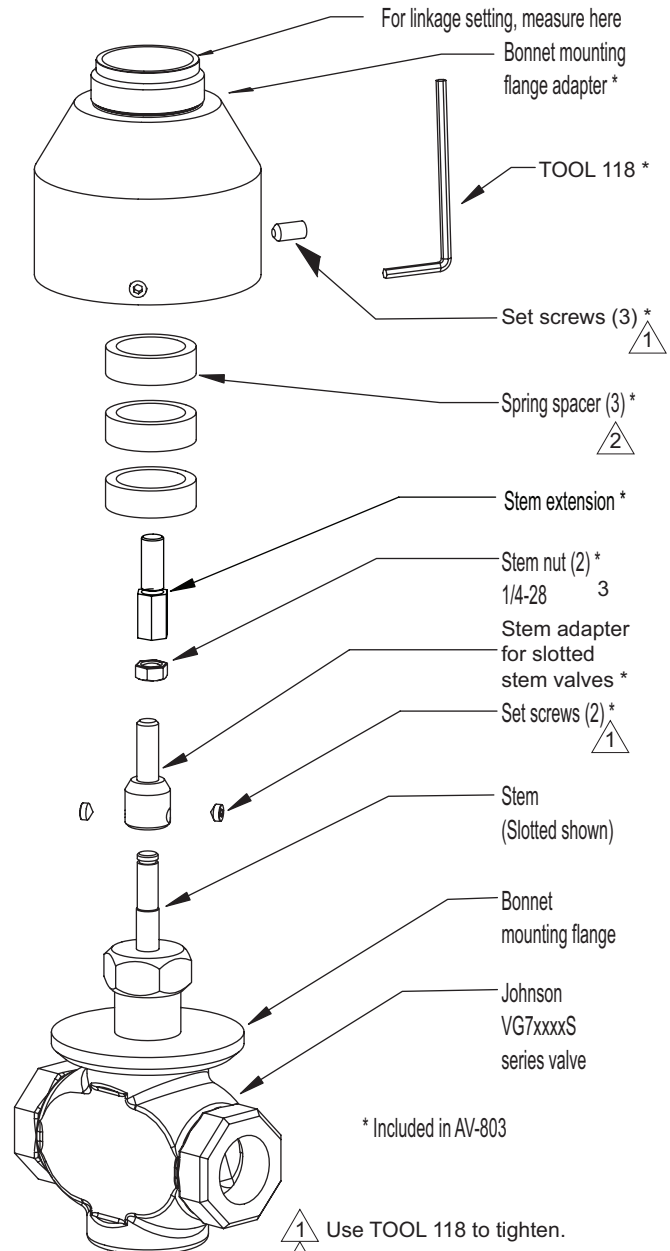
1. Connect the slotted stem adapter to the stem using the two installed short 10-32 set screws and TOOL 118 (provided).
2. Tighten to 15 in-lb. (finger tighten & then tighten 1/4 turn).
3. Install a stem nut on the stem adapter for slotted stem valves and finger tighten until it bottoms on the threads.
4. Install the stem extension finger tight onto the stem adapter for slotted stem valves.
5. Install the three set screws in the bonnet mounting flange adapter.
6. Place the bonnet mounting flange adapter on the valve.
7. Proceed to the procedure, "For Stem Up Open Valves" or "For Stem Up Closed Valves."

For Stem Up Open and 3-Way Valves

1. Push the valve stem to the fully down position.
2. Measure the distance from the top of the bonnet mounting flange adapter to the top of the stem extension. The distance should be 5/8" or more. If so, proceed to step 5.
3. If the distance from the top of the bonnet mounting flange adapter to the top of the stem extension is less than 5/8", remove the bonnet mounting flange adapter and adjust the stem extension until the distance from the top of the bonnet mounting flange adapter to the top of the stem extension is 5/8" or more and reinstall the bonnet mounting flange adapter.
4. Re-measure the distance from the top of the bonnet mounting flange adapter to the top of the stem extension to confirm it is 5/8" or more. If not, repeat step 3.
5. Remove the bonnet mounting flange adapter and tighten the stem nut against the stem extension. Reinstall the bonnet mounting flange adapter and tighten the set screws using TOOL 118, 1/4 turn past finger tight, and proceed to "Install the Actuator."

For Stem Up Closed Valves

1. Pull the valve stem to the fully up position.
2. Measure the distance from the top of the bonnet mounting flange adapter to the top of the stem extension. It should be 1-5/32" or less. If so, proceed to step 5.
3. If the distance from the top of the bonnet mounting flange adapter to the top of the stem extension is less than 1-5/32", remove the bonnet mounting flange adapter and adjust the stem extension until the distance from the top of the bonnet mounting flange adapter to the top of the stem extension is 1-5/32" or less and reinstall the bonnet mounting flange adapter.
4. Re-measure the distance from the top of the bonnet mounting flange adapter to the top of the stem extension to confirm it is 1-5/32" or less. If not, repeat step 3.
5. Remove the bonnet mounting flange adapter and tighten the stem nut against the stem extension. Reinstall the bonnet mounting flange adapter and tighten the set screws using TOOL 118, 1/4 turn past finger tight, and proceed to "Install the Actuator."



- 1 Use TOOL 118 to tighten.
- 2 All three may not be required for all valves.
- 3 An extra stem nut is included in AV-803 for use in actuator installations if required.

Figure-3 Adapter Assembly for Johnson Slotted Stem Valves.

Table - 1: Compatible Schneider Electric Actuators and Linkages^{a,b}

Schneider Electric Actuator Family ^b	Description	Required Schneider Electric Valve Linkage		Actuator General Instructions Sheet
		Part No.	General Instructions Sheet	
MK-2690 ^c	6 Square Inch Pneumatic ^d 3-7 psig (70 lb _f extended, 10 lb _f retracted) 5-10 psig (50 lb _f extended, 20 lb _f retracted) 8-13 psig (30 lb _f extended, 40 lb _f retracted)	AV-7400 (for up to 1/2" stroke valves only)	F-26236	F-13893
		AV-7800 (for 3/4" stroke valves only)	F-27432	
MK-68xx ^c	50 Square Inch Pneumatic ^d 3-8 psig (500 lb _f extended, 100 lb _f retracted) 5-10 psig (400 lb _f extended, 200 lb _f retracted) 8-13 psig (300 lb _f extended, 300 lb _f retracted)	AV-430	F-19072	F-13895
Mx51-710x	Schneider Electric SmartX Actuator (Linear - 105 lb _f) 2-position, floating, proportional Vdc, proportional mAdc Do not use this actuator on 1-1/2" and 2" Johnson valves.	None (Included in actuator)		F-27169
Mx51-720x	Schneider Electric SmartX Actuator (Linear - 220 lb _f) 2-position, floating, proportional Vdc, proportional mAdc Do not use this actuator on 1/2" and 3/4" Johnson valves.	None (included with actuator)		F-27120
M400A ^f	Schneider Electric Forta 400 N (97 lb _f) non-spring return	AV-811	F-27442	DIM119E (F-27506)
M800A ^f	Schneider Electric Forta 800 N (180 lb _f) non-spring return	AV-811	F-27442	DIM119E (F-27506)
M1500A ^f	Schneider Electric Forta 1500 N (337 lb _f) non-spring return	AV-811	F-27442	DIM119E (F-27506)

^a1-1/2" and 2" Johnson valves require the use of actuators with 3/4" stroke capability (MK-68xx, Mx51-720x, or Forta).

^bUse only these Schneider Electric actuators. (DO NOT USE OTHERS ON JOHNSON 1/2" OR 3/4" VALVES OR ANY VALVES WITH 1/4" STEM) See Warning on page 1. Consult actuator General Instructions Sheets for complete actuator specifications.

^cAK-42309-500 positive positioner may also be used (see F-22909 General Instructions or F-27383 Schneider Electric Pneumatic Products catalog for further information).

^dForces are nominal and based on 0 to 20 psig to the actuator.

^eSpring range is 7-12 psig when using AV-7800 linkage.

^fDo not use these actuators on 1/2" and 3/4" Johnson valves. Do not use on valves with less than 3/8" stroke.

Maintenance Parts

All valve body maintenance parts must be obtained from the manufacturer, Johnson Controls.

Actuator and linkage maintenance parts may be obtained from Schneider Electric. Consult the actuator's General Instructions sheet referenced in Table-1 for further information.